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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,249	10/27/2003	Perry E. Phelan	46107-0034	2686

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EXAMINER

LE, DAVID D

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 03/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,249

Applicant(s)

PHELAN ET AL.

Examiner

David D. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 and 16-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/27/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

1. This is the first Office action on the merits of Application No. 10/694,249, filed on 27 October 2003. Claims 1-24 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Information Disclosure Statement, received on 10/27/03

Election/Restrictions

3. Applicant's election without traverse of invention I, Species A, claims 1-7 and 11-15 in the reply filed on 25 February 2005 is acknowledged. Accordingly, claims 8-10 and 16-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and/or Species.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should

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describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

5. The abstract of the disclosure is objected to because it is not limited to a single paragraph and exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 12 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 12:

- Lines 8 and 12 recite the limitation "a torque biasing differential". It is unclear whether this newly recited "a torque biasing differential" is different from the one, which is recited on lines 3-4 of claim 11.

Claim 15:

- Line 3 recites the limitation “a torque biasing differential”. It is unclear whether this newly recited “a torque biasing differential” is different from the one, which is recited on lines 3-4 of claim 14.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. **Claims 1-3, 5-7, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. Re. 33,742 to Blessing et al.**

Claims 1-3, 5-7, 11, and 13:

Blessing (Figs. 1-4; column 2, line 33 – column 5, line 31) discloses a locking differential with electromagnetic actuated clutch comprising:

- A differential case (14) rotatable about an axis, said differential case including a cover (32), a housing (34), an annulus gear (36), and a ring gear (28), said differential case defining a differential cavity having a clutch cavity and a planet cavity (i.e., Figs. 1, 3, and 4);

- A retainer plate (i.e., Fig. 1, element 78) coupled to said housing and separating said clutch cavity from said planet cavity;
- Wherein the axial position of said retainer plate relative to said housing is adjustable by a screw (i.e., Fig. 1);
- Wherein said housing includes a threaded section (i.e., Fig. 1, the vicinity of flange 30), said planetary carrier includes a pedestal flange (i.e., Fig. 1, elements 42 or 44) and an axial hub (46);
- Wherein said clutch cavity is bounded by said retainer plate, axial hub, and housing (i.e., Fig. 1);
- Wherein said housing defines said clutch cavity and includes an axial opening, said retainer plate coupled to said housing between said clutch cavity and said axial opening (i.e., Fig. 1)
- Wherein said cover is fastened to said annulus gear to form said planet cavity, said ring gear is fastened to said annulus gear, and said housing is fastened to said ring gear or said annulus gear (i.e., Fig. 1, vicinity of elements 30 or 36);
- Wherein said ring gear is integral with said annulus gear, said cover is fastened to said integral annulus/ring gear and said housing is fastened to said integral annulus/ring gear (i.e., Fig. 1);
- Wherein said retainer plate is coupled to said housing to inherently resist axial forces from said planetary carrier such that said planetary differential is selectively configurable to function as a torque biasing differential or an open differential;

- Wherein a planetary gear set (40) is disposed within said planet cavity, said planetary gear set including a planetary carrier (54), inner and outer planet gears (50 and 48, respectively), and a sun gear (56);
- Wherein said inner and outer planet gears are coupled to rotate with and relative to said planetary carrier (column 2, lines 62-68);
- Wherein said outer planet gears are meshed with said annulus gear (column 3, lines 1-4);
- Wherein said inner planet gears are meshed with said outer planet gears and said sun gear (column 3, lines 4-7); and
- Wherein said locking differential includes a clutch pack (70) disposed in said clutch cavity and a clutch actuator operatively coupled to said clutch pack when said locking differential is configured to function as the torque biasing differential, said clutch pack including first clutch plates (74) fixed to rotate with said housing and second clutch plates (76) fixed to rotate with said sun gear, and wherein said retainer plate operatively engages said clutch pack to function as a reactor plate for said clutch pack when said planetary differential is configured to function as the torque biasing differential (column 3, line 27 – column 4, line 21).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blessing et al. in view of U. S. Patent No. 5,527,229 to Ishihara et al.**

Claims 12 and 14-15:

Blessing discloses the claimed limitations as set forth in paragraph 9 above.

Regarding claims 12 and 14-15, Blessing lacks:

- Wherein the second clutch plates are fixed to rotate with said planetary carrier.

Ishihara (Fig. 1; column 4, line 9 – column 6, line 25), on the other hand, teaches a planetary differential gear system provided with a differential action limiting mechanism comprising:

- A planetary carrier (13) having a boss (13a);
- First and second clutch friction plates (19a and 19b); and
- Wherein the second clutch friction plates (19b) are fixed to rotate with said planetary carrier (13).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Blessing locking differential such that the second clutch friction plates are fixed to rotate with the planetary carrier, in view of Ishihara, in order to provide a differential gear system which can prevent any undesirable consequences such as excessive wear and noises from developing when the clutch plates have significantly worn out.

Allowable Subject Matter

12. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


- Sawase et al. (U. S. Patent No. 5,415,598) teaches a speed increasing/decreasing mechanism disposed between a left and right wheel axles, as shown in Figs. 1-2.
- Blessing (U. S. Patent No. 5,024,634) teaches a vehicle differential with clutch assembly as shown in Fig. 1
- Niizawa et al. (U. S. Patent No. 5,326,333) teaches a differential apparatus as shown in Fig. 2.


- Japanese Patent No. JP404312248A teaches a differential gear as shown in Fig. 1.
- Japanese Patent No. JP404107347A teaches a differential gear including a clutch device as shown in Figs. 1 and 4.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830 or 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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